An investigation into the potential uses of the waste aggregate stockpile at Belgard quarry.

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Quarries produce huge volumes of waste aggregate during the processing and screening of rock and Belgard quarry in west Dublin, Ireland, is no different. Operated by Roadstone since the 1970s, the waste stockpile at Belgard, largely composed of weaker limestones and mudstones, has grown to considerable size and finding a potential use for this material is proving challenging. Although various internal studies have identified some potential uses of the coarse aggregate chips, 45% of the stockpile consists of <6.3mm sized chips and fine material and any processing of the stockpile to obtain the coarse chips would be cost inhibitive due to the volume of the currently unusable fine material. This study therefore focused on identifying an application for the <6.3mm material. The potential for this material to act as a treatment for acid mine drainage was investigated by using water from the Avoca river and several of the metal contaminants significantly decreased in their concentration after filtering through a channel of <6.3mm screenings. The screenings were also observed to decrease the pH of both river and tap water. A subsidiary study on the potential fertilising effects of the <6.3mm material was conducted and the growth media consisting of 50% screenings, 50% compost, outperformed 100% compost when a comparison of grass height and both above and below ground dry mass was conducted. Several possible applications of the screenings were identified as part of this study however any environmental impacts would need to be fully understood before such use.